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**HYDRAULIC CONTROL SYSTEM FOR CONSTRUCTION VEHICLE,
PARTICULARLY EXCAVATORS**

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Field of the Invention

[0001] The invention concerns a hydraulic control system for a construction vehicle, particularly for the control of the hydraulic loads of an excavator, in accordance with the preamble of patent claim 1.

Background of the Invention

[0002] A load sensing system (LUDV) with proportional flow rate reduction for all hydraulic loads, if the volumetric current of hydraulic fluid provided by the pump is insufficient for supplying all the hydraulic loads, is known from the state of the art. This regulation strategy is implemented by pressure compensators, located downstream of the spool valve. The pressure compensators maintain a constant difference in pressure, and thus one independent of the load across the A-B control edge on the load side.

[0003] Negative flow control (NFC) is also a very common hydraulic control system, in which spool valve deflection entails a reduction in the volumetric current in the open center duct and thus a reduction in the volumetric control current used at the negative flow control valve. In the negative flow control valve, the change in the volumetric control flow is converted into a difference in pressure, which is used as a signal for controlling pumps. Unlike load sensing systems, no load compensation is carried out by the pressure compensators.

[0004] Moreover, the load sensing system (PMSIII) is known in the state of the art from patent specification DE 23 64 282 C3. It is characteristic of this control system that the pumps are set to a greater volumetric displacement as control pressure increases, on the "positive control principle". The cross-section of control edges C1 and C2 then decreases on the pump side, with the volumetric current of fluid accumulating in front of said control edges C1 and C2. Simultaneously, the control edges A and B on the load side start to open, causing both the pressure of the loads and the system pressure accumulated by control edges C1 and C2 to act upon the load holding valves until the system pressure opens them so that the volumetric current of fluid can flow through the increasing cross sections of the control edges A and B on the load side.